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Front Cover: The Governor's Mansion (originally the Albert Gallatin House) in Sacramento, California, located on the corner of 16th and H street. Taken by McCurry's Foto, c. unknown. Courtesy of the Center for Sacramento History.

Back Cover: A drawing of daily life at Mission San Luis Rey in Oceanside, California from artist Emanuel Wyttenbach (1841-1903), between 1877 and 1895. Courtesy of the W.H. Davis Collection at the California State Library.

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Transportation Revolutions in California(I):

Sails, Saddles, and Wheels

*By Francisco Céntola, Georgetown University**

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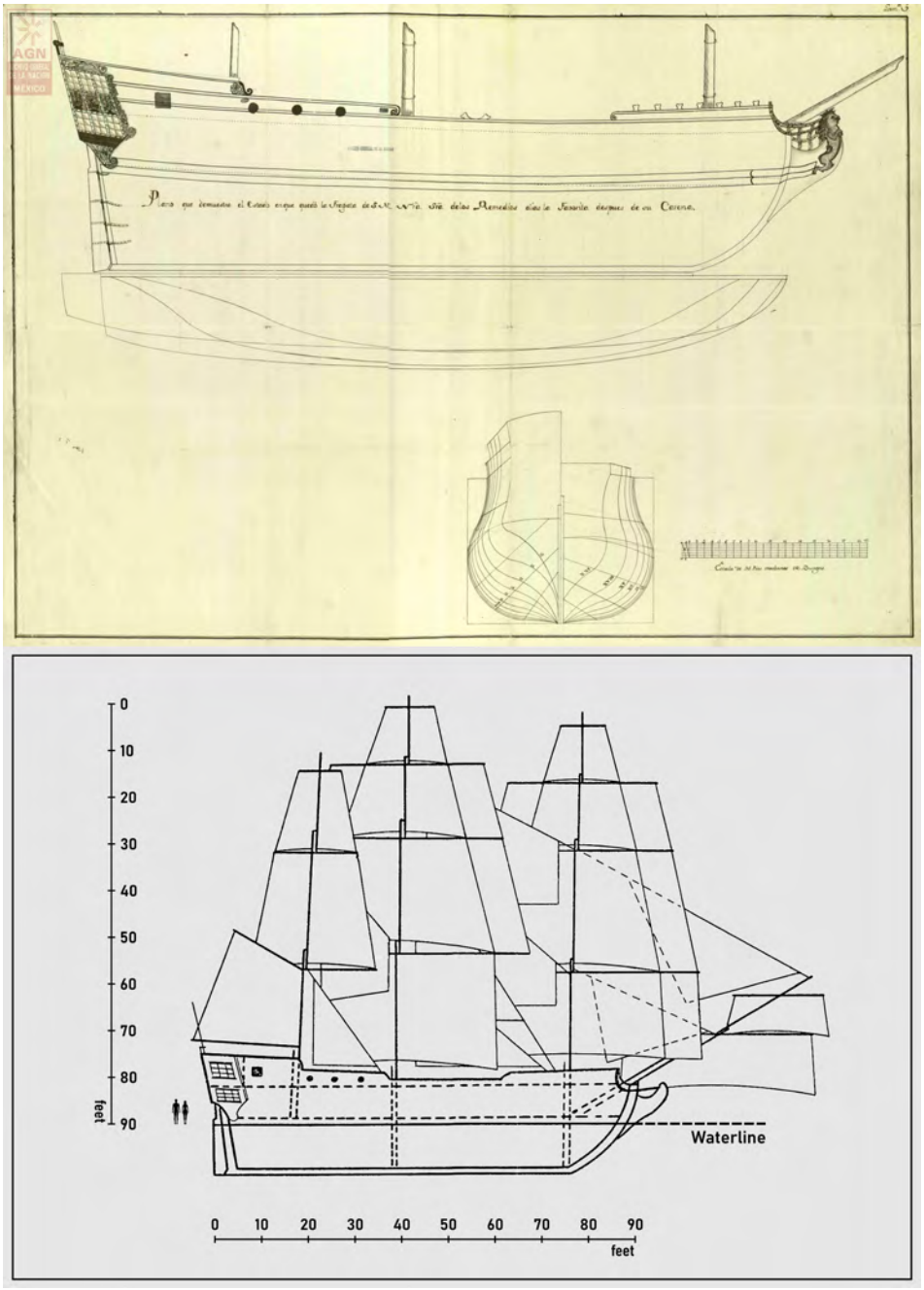
For a European sailor standing on the docks of Lisbon, Seville, Amsterdam, or London, the area that would eventually become California was very remote and quite difficult to reach in the age of maritime exploration. It took several months to enter the Pacific Ocean via Cape Horn or the Strait of Magellan, and a similarly long period to proceed from there to North America. Apart from the usual complications of extended voyages, such as limited supplies and scurvy, moving from the western coast of Mexico to California was no easy feat. The troubles faced by sailing ships can be attributed in part to the North Pacific Gyre, a vast oceanic current that circulates clockwise around the northern Pacific, and especially to one of its sub-systems known as the California Current.[1] In addition, the prevailing northeast trade winds and the frequent occurrence of storms along the way increased the complexity of this undertaking.[2]

Other potential routes were also challenging. Spanish trading galleons had followed a lengthy and perilous eastward course from Manila to Acapulco since the sixteenth century, but the presence of dense fog curtains, reefs, and shoals off the California coast discouraged extensive exploration.[3] Overland passages from places like Mexico City, New Orleans, or Boston involved many months of travel across inhospitable territories, with the Sierra Nevada and four major deserts (Great Basin, Mojave, Sonoran, and Chihuahuan) acting as natural barriers.[4] Likewise, the journey from Siberia across the Bering Strait and through Alaska was neither short nor free of hardships.

This particular combination of factors—its position on the globe and its surrounding geography—shielded California for a relatively long time from European intruders. Although some maritime expeditions did venture north of the Baja California peninsula during the sixteenth and seventeenth centuries, none led to permanent outposts.[5] In 1769, however, a Spanish campaign commanded by military officers and Franciscan missionaries finally broke the spell. Their expansionist efforts targeted the coastal zone stretching roughly between the bays of San Diego and San Francisco, which became known as Nueva

Map showing the missions of Baja and Alta California, c. 1798. Barry Lawrence Ruderman Map Collection, Stanford University Libraries.



Frigate *Nuestra Señora de los Remedios,* alias *La Favorita,* one of the ships of the San Blas fleet. Above: Original plan, c. 1777 (Archivo General de la Nación, Mexico). Below: Modern reconstruction, adapted from Kenyon, "Naval Construction," 141.

or Alta California.[6] The colonial scheme implemented there relied on a tripartite system of religious missions, presidios (military garrisons), and pueblos (civilian towns). According to one estimate, at the time of contact around 72,000 indigenous people lived in those lands, but the total population affected directly and indirectly was much higher.[7]

The soldiers, friars, and farmworkers who arrived in 1769 brought with them radically new methods of harnessing energy. In terms of food production, their intensive exploitation of domesticated plants and animals offered a sharp contrast to the indigenous forms of subsistence based primarily on hunting and gathering. This foreign socio-ecological regime had been developing for several millennia in other parts of the planet, and most of its pivotal biotic components—e.g., wheat or cattle—were absent from the ecosystems of western North America.[8] Each mission, presidio, and pueblo functioned, in some sense, as a microcosm of the agrarian world created in post-Neolithic Eurasia and North Africa. Additionally, the settlers made extensive use of gunpowder, a source of chemical energy that could be converted into deadly mechanical power with weapons such as muskets or cannons.

Aside from agriculture and guns, the energy system of the colonists also included new forms of transportation. California's indigenous peoples had depended for millennia on their own muscles and metabolic output to move across space, either by foot or using rafts and canoes.[9] The Spaniards, on the other hand, relied heavily on non-human or "extrasomatic" energy sources, namely wind and animal power. Sailing ships and working animals, along with wheeled vehicles, brought about a structural shift in relation to the exclusively human-powered or "somatic" forms of mobility of native societies.[10] These innovations soon revolutionized how people, goods, pathogens, and information circulated by sea and land.

The first contingent of Spanish colonists arrived in San Diego Bay on April 11, 1769, aboard the packet boat *San Antonio.* According to one account written a few years later by Junípero Serra, president of the frontier missions, some local observers initially mistook the ship for a whale. However, after its unusual size became apparent, they suspected that a "great novelty" was approaching.[11] Indeed, the sight of that wooden leviathan marked the beginning of an unthinkable set of transformations for

Replica of a *carreta* in Mission San Francisco Solano, Sonoma, California. *Photograph by the author.*

California's aboriginal peoples. But apart from all the disruptive events that followed, the vessel was in and of itself a great novelty—especially vis-à-vis indigenous watercraft. The Chumash from the Santa Barbara Channel region, for example, utilized oceangoing plank canoes that had a total carrying capacity of perhaps as much as two tons.[12] While remarkable in the broader context of Native American canoe building, these boats paled in comparison with the Spanish ships: a few months before the encounter described above, the *San Carlos*—another packet boat of the founding expedition of 1769-1770—had set sail from the port of La Paz, in Baja California, with 62 people on board and a cargo that included six head of cattle, 40 hens, 152 water barrels, 160.5 fanegas of maize (8.1 tons), 308 arrobas of hardtack (3.9 tons), and 187 arrobas of salted meat (2.4 tons), among many other goods.[13] In addition to their much higher net tonnage (volume capacity) and deadweight tonnage (weight capacity), sailing vessels offered vastly superior safety conditions and improved protection from the elements. All these features, together with a qualitatively different propulsion mechanism (i.e., the use of sails and the balancing force of the keel to convert wind energy into forward motion), made long blue-water voyages possible.

Wind power and Western European empire building were strongly intertwined during the early modern period.[14] For Spain in particular, sailing ships represented a central piece of the logistical scheme that tied together its large territorial possessions across the Americas and beyond. This transoceanic network included the Spanish treasure fleet, a convoy system that connected various American ports like Veracruz or Cartagena de Indias with Seville and later on Cádiz, and the Manila galleons, which made regular trips between the Philippines and New Spain, as well as other subsidiary lines operating in the Caribbean and the eastern Pacific.[15] The main maritime link with Alta California depended on the port of San Blas, located about 600 miles north of Acapulco.[16] San Blas provided vital support during the initial years of frontier expansion: although most of the newly settled areas offered excellent climatic and ecological conditions to grow European crops, at first the missions were not self-sufficient and food shipments remained crucial to cope with scarcity.[17] In addition to the small fleet that served this long-distance route and facilitated domestic transportation across Alta California, at the turn of the nineteenth century an increasing number of foreign vessels from different parts of the globe (e.g., the United States, England, and Russia) began stopping